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DIRECT TESTIMONY
OF
MARK P. LOUGHMAN
On Behalf of
MISSISSIPPI POWER COMPANY
BEFORE THE MISSISSIPPI PUBLIC SERVICE COMMISSION
DOCKET NO. _____

- Q.** Would you please state your name, position and business address?
- A.** My name is Mark P. Loughman. I am the Director of Environmental Affairs for Mississippi Power Company (MPC or the Company). My business address is 2992 West Beach Boulevard, Gulfport, Mississippi, 39501.
- Q.** Please describe your education and professional experience.
- A.** I earned a Bachelor of Arts degree in Economics from Millsaps College in 1988 and a Master of Science degree in Environmental Management from Yale University in 1992. Following my undergraduate studies, I worked as a financial consultant with Merrill Lynch in Nashville, Tennessee. After earning my graduate degree, I began a career in the environmental arena, working for the Louisiana Department of Environmental Quality in Baton Rouge, Louisiana; URS Greiner, Inc. in Metairie, Louisiana; and Johnson Controls World Services at Stennis Space Center, Mississippi.
- I joined Mississippi Power Company as an Environmental Specialist in 1998. I transferred to our Economic Development department in 2002, where I

1 worked as a business recruiting representative until I was named Director of
2 Economic Development in 2005.

3 In 2008, I became the Major Account Sales Manager, with responsibility
4 for sales of energy products and services to our large industrial, oil and gas,
5 federal, hospital, municipal, education, and hospitality customers. In 2010, I was
6 named the Pascagoula Area Manager with overall responsibility for safety, area
7 operations, customer accounting, customer service, materials, and local external
8 affairs in Jackson County.

9 In late 2011, I returned to the environmental arena as the Director of
10 Environmental Affairs.

11 **Q. Have you previously testified before the Mississippi Public Service
12 Commission (MPSC or the Commission)?**

13 **A.** Yes, I have.

14 **Q. What is the purpose of your testimony?**

15 **A.** The purpose of my testimony is to support the Company's request for a certificate
16 of public convenience and necessity for the following environmental compliance
17 projects at the Company's Victor J. Daniel Electric Generating Plant (Plant
18 Daniel) Units 1 and 2, collectively referred to as the Coal Combustion Residuals
19 (CCR) or CCR Projects:

- 20 1. Bottom Ash Conversion;
- 21 2. Ash Pond Closure; and
- 22 3. Low-Volume Wastewater (LVW) Treatment System.

1 Together the CCR Projects are estimated to cost approximately \$125 million and
2 are projected to be completed by 2022. Based upon MPC's fifty percent (50%)
3 undivided ownership interest in the coal units at Plant Daniel, the Company's
4 share of the estimated costs would be approximately \$62.5 million. If approved,
5 these environmental compliance project costs would ultimately be included for
6 cost recovery primarily through the Company's Environmental Compliance
7 Overview Plan, Rate Schedule "ECO" at the appropriate time.

8 In 2015, the federal Environmental Protection Agency (EPA) finalized
9 regulations for the disposal of CCR as solid waste, which triggered the required
10 closing of the Ash Pond at Plant Daniel. Particularly, the CCR rule established a
11 new minimum distance between the base of a surface impoundment, like the Ash
12 Pond, and the uppermost limit of the uppermost aquifer. The timetable adopted
13 by the EPA requires that MPC must cease placing CCR and non-CCR waste
14 streams into the Ash Pond by October 31, 2020. To comply with the EPA's
15 regulations, MPC must complete each of the projects noted above and must do so
16 sequentially; that is, MPC first must complete the Bottom Ash Conversion before
17 it can begin the Ash Pond Closure Plan, which would then allow the construction
18 of the LVW Treatment System. To comply with EPA's timeline, MPC must
19 begin construction of the CCR Projects no later than November 1, 2019.

20 **Q. Do you sponsor any exhibits with your testimony?**

21 **A.** Yes, I am sponsoring the following exhibits:

22 Exhibit____(MPL-1) Plant Layout Showing Location of Projects

23 Exhibit____(MPL-2) CCR Project Schedule

2 **Q. Were the exhibits prepared under your supervision and control?**

3 **A.** Yes, they were.

4 **Q. Do any of these exhibits contain information that is confidential in nature?**

5 **A.** No.

6 **Ash Pond Closure**

7 **Q. Why is the Company proposing to close the Ash Pond at Plant Daniel?**

8 **A.** On April 17, 2015, the EPA published a final rule to regulate the disposal of -
9 CCR- as solid waste under subtitle D of the Resource Conservation and Recovery
10 Act (CCR Rule or Rule). The Rule established national minimum criteria for
11 CCR surface impoundments. The Ash Pond at Plant Daniel is a CCR surface
12 impoundment covered by the Rule. The national minimum criteria include
13 location restrictions, one of which requires that the base of CCR surface
14 impoundments must be located no less than five (5) feet above the upper limit of
15 the uppermost aquifer.¹ Based on a review of available groundwater data, the Ash
16 Pond does not meet the minimum five-foot separation between the base of the
17 CCR unit and the upper limit of the uppermost aquifer, and therefore under
18 current operating conditions does not meet this location restriction. The Rule
19 requires the closure of any CCR surface impoundment that cannot meet the
20 applicable performance criteria for location restrictions.²

21 **Q. What are coal combustion residuals?**

¹ 80 FR 21471-72, April 17, 2015; 83 FR 36451, July 30, 2018, 40 CFR § 257.60(a).

² 80 FR 21490-91, April 17, 2015; 83 FR 36454, July 30, 2018; 40 CFR § 257.101(b)(1).

1 **A.** Coal combustion residuals or CCR, commonly known as coal ash, are created
2 when coal is burned by power plants to produce electricity. There are four types
3 of CCR: fly ash, bottom ash, boiler slag, and flue gas desulfurization materials.
4 Plant Daniel produces all four types of CCR in its normal operations.

5 **Q.** **What is bottom ash?**

6 **A.** Bottom ash consists of heavier coal ash particles and molten slag that are not
7 entrained in the flue gas, but instead fall to the bottom of the furnace. At Plant
8 Daniel, hot bottom ash is quenched in a water-filled hopper located at the bottom
9 of the furnace, then ground to a smaller particle size and transported by sluice
10 water to the Ash Pond.

11 **Q.** **Please describe the Ash Pond at Plant Daniel.**

12 **A.** The Ash Pond is a surface impoundment located on the plant site designed to
13 receive and store bottom ash produced by Units 1 and 2 during the coal-fired
14 electric generating process. It also serves as a low-volume wastewater retention
15 pond for the plant. The Ash Pond is a 23-acre triangular shaped impoundment
16 with earthen embankments capable of storing up to 406,000 cubic yards of bottom
17 ash. Exhibit____(MPL-1) depicts the layout of Plant Daniel showing the location
18 of the Ash Pond and the other projects for which MPC is requesting approval.

19 The primary flow into the Ash Pond is bottom ash carried by sluice water.
20 Bottom ash is sluiced to the north end of the pond where it is allowed to decant.
21 After decantation, some bottom ash is removed for beneficial reuse purposes.
22 Decant water is returned to the plant for reuse via a pumping station located on
23 the south end of the pond or is pumped to the adjoining plant discharge canal at a

1 permitted discharge point. Several non-CCR waste streams, which I will describe
2 later in my testimony, also flow into the Ash Pond.

3 **Q. How does MPC plan to close the Ash Pond?**

4 **A.** The Ash Pond will be closed through removal of all CCR in accordance with 40
5 CFR § 257.102(c) of the Rule. This is in contrast to the ash pond closure at Plant
6 Watson, which allowed for closure without removal in accordance with 40 CFR §
7 257.102(a). The pond will be dewatered as required to facilitate excavation or
8 dredging of ash for removal. All CCR will be excavated, transported, and
9 disposed of in a permitted dry ash landfill located on the plant site or sold for
10 beneficial use. Closure will include removing all visible ash present over the
11 existing Ash Pond liner. After backfilling to an elevation above the water table,
12 the impoundment will be repurposed to serve as a low-volume wastewater
13 retention pond, which I will discuss later in my testimony.

14 **Q. What is the required timetable for closing the Ash Pond?**

15 MPC must cease placing CCR and non-CCR waste streams into the Ash Pond no
16 later than October 31, 2020.³ Closure must be completed generally within five (5)
17 years of commencing closure activities.⁴ MPC currently expects to complete
18 closure activities by the first quarter of 2022, well in advance of the closure
19 deadline. The evolution of the EPA timeline is discussed later in my testimony.

20 **Low-Volume Wastewater Treatment System**

21 **Q. Why is MPC proposing to install a low-volume wastewater treatment**
22 **system?**

³ 83 FR 36454, July 30, 2018; 40 CFR § 257.101(b)(1)(i).

⁴ 80 FR 21302, April 17, 2015, § 257.102(f)(1)(ii)

1 **A.** As stated previously, the Ash Pond currently serves dual roles as a bottom ash
2 storage facility and LVW retention pond. The following non-CCR waste streams
3 currently flow into the Ash Pond:

- 4 1. Coal Pile Runoff (CPR) Pond discharge;
- 5 2. Wastewater Basin discharge;
- 6 3. North Ash Management Unit (NAMU) leachate and storm water runoff;
- 7 and
- 8 4. Central Ash Management Unit (CAMU) leachate and storm water runoff.

9 As discussed earlier, the CCR rule currently requires MPC to cease placing these
10 waste streams into the Ash Pond no later than October 31, 2020. Alternate
11 treatment facilities are required to accommodate these waste streams once they
12 can no longer be placed into the Ash Pond.

13 **Q.** **What is the scope of the new LVW treatment system?**

14 **A.** After the Ash Pond is closed, the impoundment will be repurposed to serve as a
15 LVW retention pond (LVW Pond). The impoundment will be backfilled to an
16 elevation five (5) feet above the water table. A liner will be installed in the
17 impoundment to prevent interaction between the pond and the local aquifer.
18 Berms and floating baffles will be added within the impoundment to facilitate
19 settling of flocculated particles.

20 Flocculation tanks will be installed to treat the discharges from the CPR
21 Pond and the Wastewater Basin before reaching the LVW Pond. In the tanks, the
22 discharge water will be treated with flocculating agents which will cause fine

1 particles to clump together forming flakes that will settle out more readily in the
2 LVW Pond.

3 In addition, pH adjustment capability will be added to adjust the pH of the
4 water, and certain modifications will be made to the perimeter of the coal pile and
5 the CPR Pond in order to better retain and manage coal fines.

6 **Q. Were other LVW treatment options considered?**

7 **A.** Yes. The Company also considered three (3) other options that do not include
8 repurposing the Ash Pond:

- 9 1. Install traditional mechanical clarification and treatment;
- 10 2. Build a new LVW Pond and make improvements to the CPR Pond; and
- 11 3. Repurpose the CPR Pond as an LVW Pond and build a new CPR Pond.

12 Repurposing the Ash Pond is the lowest cost option.

13 **Q. What will you do with your LVW streams while you are closing and**
14 **repurposing the Ash Pond?**

15 **A.** Temporary clarifier trailers will be rented to treat the effluent from the CPR Pond,
16 Wastewater Basin, CAMU, and NAMU before they are pumped to the permitted
17 outfall at the plant discharge canal. Early installation of the permanent
18 flocculation tanks is expected to reduce the number of temporary trailers that will
19 be needed.

20 **Q. Would the other three (3) options considered by the Company have also**
21 **required temporary treatment trailers?**

22 Yes. Recent actions by the EPA and the D.C. Circuit Court of Appeals, which I
23 discuss later in my testimony, potentially advance the cease-receipt deadline

1 ahead of the projected completion dates for the other three (3) options. Therefore,
2 all three (3) options would have required temporary trailers to treat LVW streams
3 until the permanent treatment facilities could be completed.

4 **Bottom Ash Conversion**

5 **Q. Why is the Company proposing the Bottom Ash Conversion project?**

6 **A.** Currently, bottom ash (which is a CCR) produced in Units 1 and 2 is sluiced to
7 the Ash Pond. As previously discussed, the CCR Rule requires the Company to
8 cease receipt of CCR and non-CCR waste streams into the Ash Pond by October
9 31, 2020. The Bottom Ash Conversion will provide alternate handling and
10 storage of bottom ash that does not require the Ash Pond for the discharge of any
11 CCR waste stream.

12 **Q. What is the scope of the Bottom Ash Conversion project?**

13 **A.** MPC plans to replace the existing bottom ash sluice system on Units 1 and 2 with
14 a Submerged Grind Conveyor (SGC) system. An SGC is a bottom-carry,
15 submerged drag chain conveyor with both the bottom-carry chain and flights and
16 the return chain and flights contained in a small cross-section, water-tight
17 enclosure. The bottom ash hoppers, ash gates, and clinker grinders will also be
18 replaced to ensure proper fit and compatibility with the new bottom ash handling
19 system. An SGC will be installed under each clinker grinder to collect bottom ash
20 and transport it from under the furnace. A second SGC will carry the bottom ash
21 to a dry transfer conveyor which will dewater and feed the bottom ash into a
22 storage bunker located beside the unit. The SGC system will not use Bottom Ash

1 Transport Water which was prohibited by requirements of the EPA's Effluent
2 Limitation Guidelines that become effective on November 1, 2020.⁵

3 **Q. Did MPC consider other technologies to replace the sluice system?**

4 **A.** Yes. The Company evaluated four (4) other bottom ash dewatering systems:

- 5 1. Remote Submerged Chain Conveyor (RSCC);
- 6 2. Hydrobin Dewatering Bin;
- 7 3. Pneumatic Ash Extractor (PAX); and
- 8 4. Magaldi Ash Cooler (MAC).

9 The SGC system was selected due to its lower overall cost.

10 **Q. With lower natural gas price forecasts putting downward pressure on the**
11 **long-term economics of MPC's coal-fired units, has MPC considered**
12 **delaying or canceling these projects?**

13 **A.** Yes. The schedule for CCR projects is driven by the 2020 deadline to cease waste
14 streams into the Ash pond. Retirement of either Unit 1 or Unit 2 at Plant Daniel
15 prior to the 2020 deadline for ceasing waste streams into the Ash pond is not
16 feasible given current transmission constraints.

17 As noted in MPC's Reserve Margin Plan filed with the Commission in
18 2018, transmission studies conducted by the Southern Electric System indicate
19 that MPC and Alabama Power Company must complete certain transmission
20 improvement projects prior to ceasing operation of Units 4 and 5 at Plant Watson.
21 Studies indicate the same improvements are necessary for the retirement of either

⁵ 82 FR 43494, September 18, 2017, 40 CFR Part 423, § 423.11(t), § 423.13(k)(1)(i), and § 423.16(g)

1 Unit 1 or Unit 2 at Plant Daniel. The transmission projects are projected to be
2 completed no earlier than 2022.

3 The CCR Rule allows CCR to continue to be placed into the Ash Pond
4 beyond the 2020 deadline if both co-owners of Units 1 and 2 (MPC and Gulf
5 Power Company) certify that the plant will cease operation of both coal-fired
6 boilers no later than October 17, 2023. Ash Pond closure must also be completed
7 by this same date. Therefore, the maximum time available to continue use of the
8 Ash Pond becomes a function of the anticipated duration of closure activities.
9 Given the stringency of the closure requirements and the time necessary to
10 comply with them, cessation of CCR waste streams would be required prior to
11 completion of the transmission improvement projects in 2022. The Bottom Ash
12 Conversion would be required to allow the units to remain in service until these
13 transmission improvement projects are completed in order to maintain the
14 reliability of the electric system.

15 Another factor that MPC considered is that the extension for ceasing
16 operation of coal-fired boilers does not apply to non-CCR waste streams.
17 Therefore, under this scenario, MPC would have to construct a new LVW Pond
18 prior to October 31, 2020. That is, MPC must cease placing CCR *and* non-CCR
19 waste streams into the Ash Pond no later than October 31, 2020. Considering all
20 of these factors, MPC has concluded that the CCR projects must be completed as
21 scheduled in order to maintain the reliability of the electric system beyond 2020,
22 regardless of the long-term economics of the units.
23

1 **Q. Is this the original timeline established by the EPA's Rule?**

2 No. The Company had expected the cease-receipt date to be in the range of April
3 2021 to February 2023. The alternate closure requirements in the Rule provide
4 that a CCR unit may continue to receive CCR if no alternative disposal capacity is
5 available.⁶ Once alternative capacity is available, the surface impoundment must
6 cease receiving CCR and closure must begin. MPC evaluated three (3) main
7 options for the installation of alternate disposal capacity for CCR and non-CCR
8 waste streams currently flowing into the Ash Pond. The projected completion
9 dates for the three (3) options ranged from April 2021 to February 2023.

10 **Q. Was there reason to believe that the alternate closure requirements would**
11 **also apply to non-CCR waste streams flowing into the Ash Pond?**

12 Yes. The no-alternative-capacity extension to the cease-receipt deadline was
13 challenged in 2015 on the grounds that the exemption was too narrow.⁷ The
14 plaintiffs argued that EPA had failed to address comments made during the
15 rulemaking process informing the EPA that many power plants use the same
16 surface impoundments to manage both CCR and non-CCR waste streams. In
17 response, EPA re-examined the record and concluded that it had failed to address
18 these comments. On June 14, 2016, the U. S. Court of Appeals for the D.C.
19 Circuit remanded the alternative closure provisions back to EPA for further
20 consideration.⁸ It was widely expected that EPA would amend the Rule to
21 include non-CCR waste streams in the deadline extension provisions, and

⁶ 80 FR 21302, April 17, 2015, 40 § 257.103(a)(1)

⁷ *USWAG, et al. v. EPA*, No. 15-1219 (D.C. Cir. 2015).

⁸ *USWAG, et al. v. EPA*, No. 15-1219, Dkt. 1619358 (D.C. Cir. June 14, 2016).

1 therefore, give power plants adequate time to arrange for alternate treatment
2 facilities.

3 **Q. When did that expectation change?**

4 On March 15, 2018, the EPA published proposed revisions to the Rule (Phase
5 One, Part One Amendments) in which it proposed to include non-CCR waste
6 streams in the deadline extension only for power plants in certain North American
7 Electric Reliability Corporation (NERC) regions and sub-regions.⁹ Plant Daniel
8 is not located in the NERC regions or sub-regions designated by the EPA.
9 On July 30, 2018 the EPA finalized the Phase One, Part One Amendments in
10 which it made no changes to the extension provisions for no alternative capacity
11 in the Rule. However, as previously discussed, the EPA extended the overall
12 cease-receipt deadline for CCR and non-CCR waste streams to October 31, 2020.

13 **Q. What is the proposed schedule for completing the CCR Projects?**

14 **A.**See Exhibit____(MPL-2) for the schedule for completing of the proposed CCR
15 Projects.

16 **Q. What is the estimated cost for completing these CCR Projects?**

17 **A.**See Exhibit____(MPL-3) for the cost estimate for completing each of the
18 proposed CCR Projects.

19 **Q. In connection with the proposed CCR Projects, are there any required**
20 **approvals to be obtained from the Health and Environmental Quality**
21 **authorities or other authorities other than the Mississippi Public Service**
22 **Commission?**

⁹ 83 FR 11594-97, March 15, 2018.

1 **A.** Yes. Discussions with the MDEQ have already been initiated and the agency is
2 supportive of the Company's plan to close and repurpose the Ash Pond. Closure
3 of the ash pond will require that MPC develop a written closure plan and de-
4 watering plan; make various notifications and progress reports to the MDEQ; and
5 obtain certification of the completed closure from a professional engineer. The
6 repurposing of the Ash Pond will require notification of a change in the permitted
7 operations and revisions to the applicable National Pollutant Discharge
8 Elimination System (NPDES) permits.

9 **Q.** **In your opinion does the public convenience and necessity require the**
10 **proposed CCR Projects described above in connection with the Company's**
11 **service to its customers in Mississippi?**

12 **A.** Yes.

13 **Q.** **Does this conclude your testimony?**

14 **A.** Yes, it does.

BEFORE THE MISSISSIPPI PUBLIC SERVICE COMMISSION

MISSISSIPPI POWER COMPANY
EC-120-0097-00

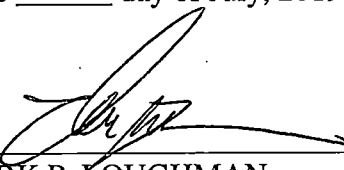
DOCKET NO. _____

IN RE: **PETITION OF MISSISSIPPI POWER COMPANY FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY FOR ENVIRONMENTAL COMPLIANCE ACTIVITIES AUTHORIZING THE CLOSURE OF THE ASH POND, CONSTRUCTION OF LOW VOLUME WASTEWATER TREATMENT FACILITIES, AND CONVERSION OF BOTTOM ASH COLLECTION FACILITIES FOR THE PLANT VICTOR J. DANIEL ELECTRIC GENERATING FACILITY IN JACKSON COUNTY, MISSISSIPPI**

AFFIDAVIT OF MARK P. LOUGHMAN

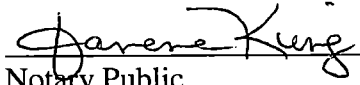
PERSONALLY appeared before the undersigned officer authorized to administer oaths, Mark P. Loughman, who being duly sworn, deposes and says; that the foregoing direct testimony was prepared by him or under his supervision; that said testimony was prepared for use as direct testimony on behalf of Mississippi Power Company in the captioned proceeding; that the facts stated therein are true the best of his knowledge, information and belief; and that if asked the questions appearing therein, his answers, under oath, would be the same.

Dated at Gulfport, Mississippi, this the 8th day of July, 2019.



MARK P. LOUGHMAN

Sworn to and subscribed before me this the 8th day of July, 2019.



Notary Public

My Commission Expires:

02-20-2021

